

C L A I M S

1. Process for the preparation of a dispersion of a rigid-chain conjugated polymer, which is insoluble in organic solvents, in an aqueous or organic or aqueous-organic dispersion medium, comprising the steps:

- a) preparing a solution of the polymer in a strong acid or in a liquid mixture comprising a Lewis acid; and
- b) introducing the solution prepared in step a) into an aqueous surfactant solution so as to form a dispersion of the polymer.

2. Process according to claim 1, wherein, after step b), the following further steps are carried out:

- c) separating the dispersed polymer from the aqueous phase of the dispersion obtained in step b);
- d) washing the separated polymer;
- e) re-dispersing the washed polymer in an aqueous or organic surfactant solution.

3. Process according to one of the preceding claims, wherein step b) and, optionally, step e) are carried out under the influence of ultrasound.

4. Process according to one of the preceding claims, wherein the rigid-chain conjugated polymer is selected from the group consisting of aromatic, heterocyclic ladder polymers, polyquinolines, polybenzothiazoles, polybenzoimidazoles, polyheterodiazoles and mixtures thereof.

5. Process according to one of the preceding claims, wherein the rigid-chain conjugated polymer is poly(benzobisimidazobenzophenanthroline) (BBL).

6. Process according to one of the preceding claims, wherein the strong acid employed in step a) is methane sulfonic acid or concentrated sulfuric acid.

7. Process according to one of the preceding claims, wherein a solution of the polymer in a nitroalkane/Lewis acid mixture is prepared in step a).

8. Process according to one of the preceding claims, wherein the surfactant employed in step b) or in step e) is selected from the group consisting of ethoxylates, polyethylene glycols and fatty amine ethoxylates.

9. Process according to one of the preceding claims, wherein the content of the polymer in the solution prepared in step a) is 0.1 to 5 wt-%.

10. Process according to one of the preceding claims, wherein the content of the surfactant in the surfactant solution employed in steps b) or e) is 0.01 to 5 wt-%.

11. Process according to one of the preceding claims, wherein the size of the dispersed polymer particles in the dispersion produced lies in the range of 10 to 800 nm.

12. Dispersion of a rigid-chain conjugated polymer, which is insoluble in organic solvents, in an aqueous or organic or aqueous-organic dispersion medium, wherein the size of the dispersed polymer particles lies in the range of 10 to 800 nm.

13. Dispersion according to claim 12, wherein the dispersion medium consists essentially of water or a mixture of water and an organic solvent which is miscible with water.

14. Use of a dispersion according to one of claims 12 or 13 for the preparation of a thin film of a rigid-chain conjugated polymer.

15. Use of a dispersion according to one of claims 12 or 13 for the preparation of an electronic element.

16. Use according to claim 15, wherein the electronic element is a field effect transistor, an organic LED or a photovoltaic cell.